

WHAT IS CLAIMED IS:

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1. A microplate, comprising:
a frame including a plurality of wells formed therein,
each well including:
a first well having a relatively small concaved
reservoir; and
a second well having a relatively large reservoir
positioned near the relatively small concaved reservoir of
10 said first well.
2. The microplate of Claim 1, wherein said first
well and said second well overlap one another.
- 15 3. The microplate of Claim 1, wherein said first
well and said second well are adjacent to one another.
- 20 4. The microplate of Claim 1, wherein said first
well and said second well are connected to one another by a
channel.
5. The microplate of Claim 1, wherein said frame has
a footprint capable of being handled by a robotic handling
system.
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6. The microplate of Claim 1, wherein each well is positioned on said frame so as to enable a liquid handling system to automatically deposit a sample solution into said first well and to automatically deposit a reagent solution into said second well.

7. The microplate of Claim 1, further comprising a seal that is positioned over said plurality of wells.

8. The microplate of Claim 1, wherein said microplate is manufactured from cyclo-olefin.

9. The microplate of Claim 1, wherein said frame and said plurality of wells form a multi well high-throughput protein crystallography plate.

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10. A protein crystallography plate, comprising:
a frame including a plurality of wells formed therein,
each well including:

a first well including a relatively small
reservoir having a substantially concaved form capable
of receiving a protein solution and a reagent
solution; and

a second well including a relatively large
reservoir capable of receiving a reagent solution that
has a higher concentration than the reagent solution
within said first well, wherein the protein solution
and the reagent solution within said first well
interact with the reagent solution within said second
well via a vapor diffusion process which enables the
formation of protein crystals within said first well.

11. The protein crystallography plate of Claim 10,
wherein said first well and said second well overlap one
another.

12. The protein crystallography plate of Claim 10,
wherein said first well and said second well are adjacent
to one another.

13. The protein crystallography plate of Claim 10,
wherein said first well and said second well are connected
to one another by a channel.

14. The protein crystallography plate of Claim 10, wherein said frame has a footprint capable of being handled by a robotic handling system.

5 15. The protein crystallography plate of Claim 14, wherein said robotic handling system is a Society of Biomolecular Screening compatible robotic handling system.

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10 16. The protein crystallography plate of Claim 10, wherein each well is positioned on said frame so as to enable a liquid handling system to automatically deposit a sample solution into said first well and to automatically deposit a reagent solution into said second well.

15 17. The protein crystallography plate of Claim 16, wherein said liquid handling system is a Society of Biomolecular Screening compatible liquid handling system.

20 18. The protein crystallography plate of Claim 10, further comprising a seal that is positioned over said plurality of wells.

25 19. The protein crystallography plate of Claim 10, wherein said frame and said plurality of wells are manufactured from cyclo-olefin.

20. The protein crystallography plate of Claim 10, wherein said protein crystallography plate is a 96 well high-throughput protein crystallography plate.

5 21. A method for using a microplate to form protein crystals, said method comprising the steps of:

prepping the microplate which includes a frame having a plurality of wells formed therein where each well includes a first well having a relatively small concaved
10 reservoir and a second well having a relatively large reservoir, said step of prepping further includes:

depositing into the first well a protein solution and a reagent solution; and

15 depositing into the second well a reagent solution that has a higher concentration than the reagent solution deposited into the first well; and

sealing an opening of each well to enable the protein solution and the reagent solution within the first well to interact with the reagent solution within the second well
20 via a vapor diffusion process which leads to the formation of protein crystals within the first well.

22. The method of Claim 21, wherein said first well and said second well overlap one another.

25 23. The method of Claim 21, wherein said first well and said second well are adjacent to one another.

24. The method of Claim 21, wherein said first well and said second well are connected to one another by a channel.

5 25. The method of Claim 21, wherein said microplate has a footprint capable of being handled by a Society of Biomolecular Screening compatible robotic handling system.

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10 26. The method of Claim 21, wherein each well is positioned on said frame so as to enable a Society of Biomolecular Screening compatible liquid handling system to automatically deposit a sample solution into said first well and to automatically deposit a reagent solution into said second well.

15 27. The method of Claim 21, wherein said microplate is manufactured from cylco-olefin.

20 28. The method of Claim 21, wherein said microplate is a multi-well high-throughput crystallography plate.

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29. A method for making a microplate, said method comprising the steps of:

injecting a molten plastic material into a mold cavity that includes sections shaped to form said microplate, said
5 microplate includes:

a frame having a plurality of wells formed therein, each well including:

a first well having a relatively small concaved reservoir; and

10 a second well having a relatively large reservoir positioned near the relatively small concaved reservoir of the first well; and

cooling the plastic material to create said microplate.

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30. The method of Claim 29, wherein said first well and said second well overlap one another.

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31. The method of Claim 20, wherein said first well and said second well are adjacent to one another.

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32. The method of Claim 29, wherein said first well and said second well are connected to one another by a channel.

33. The method of Claim 29, wherein said frame has a footprint capable of being handled by a robotic handling system.

34. The method of Claim 29, wherein each well is positioned on said frame so as to enable a Society of Biomolecular Screening compatible liquid handling system to automatically deposit a sample solution into said first well and to automatically deposit a reagent solution into said second well.

35. The method of Claim 29, wherein said plastic material is cyclo-olefin.

36. The method of Claim 29, wherein said microplate is a multi-well high-throughput protein crystallography plate.

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